

**Preliminary Drainage Analysis  
for  
318 STATE STREET  
at  
APN 037-254-020 and 037-254-007  
City of Santa Barbara, California**

November 2005

SUBMITTAL TO: City of Santa Barbara  
CLIENT: Cearnal Andrulaitis  
PREPARED BY: Penfield & Smith  
101 East Victoria Street  
Santa Barbara, California 93101  
(805) 963-9532  
WORK ORDER NO.: 16775.01  
DESIGN ENGINEER: Carrie Collins  
PROJECT ENGINEER: Stephen C. Wang, R.C.E. 44255

**RECEIVED**

NOV 18 2005

CITY OF SANTA BARBARA/  
PLANNING DIVISION

## **PURPOSE OF REPORT**

The purpose of this report is to describe the existing and proposed site drainage conditions and estimate the amount of drainage runoff being transmitted through the project site for a 25-year storm event.

## **LOCATION**

The project location is an approximately 1.43 acre site located at 318 State Street between Gutierrez Street and U.S. Highway 101. The property is on APN 037-254-020 and 037-254-007. A small portion of the westerly project site is within the flood plain per FEMA Flood Insurance Rate Map Community-Panel Number 0603350005D. (See attached.)

## **EXISTING CONDITION**

The site has existing buildings and is considered a commercial site. A portion of the storm runoff sheet flows from the west toward the east across a portion of the site to Anacapa Street. The other portion of storm runoff flows to the westerly catch basin which connects to an 8" storm drain pipe. (See pre-development drainage area map).

## **PROPOSED CONDITION**

The project development consists of offices, retail units, condominiums and an underground parking garage. Roof drains from each building are connected to the site storm drain pipe. Catch basins are proposed for the site storm drain system which drains the water towards the east and west. The easterly drainage area flows to Anacapa Street. The westerly area flows to the existing 8" storm drain pipe.

The drainage from the central portion of the development will flow to the center of the driveway and flow into a storm drain pipe as well as along the central driveway and sheet flow to Anacapa Street. The storm drain pipe connects to the sidewalk drain out to the gutter on Anacapa Street and continues to match the existing condition. Drainage from the landscape areas will also flow into the storm drain system.

Drainage from the westerly portion of the buildings and landscape area will flow to the existing storm drain pipe, matching the existing condition. (See post-development drainage area map.)

The project site finish floor elevations are all more than two feet above the FEMA 100-year flood elevation.

## **METHOD OF ANALYSIS**

The drainage peak runoffs for the 25-year storm event were calculated for the sites' pre-development and post-development conditions. The drainage analysis was prepared according to the current Santa Barbara County Flood Control design Standards. The hydrology calculations utilized the Santa Barbara County Flood Control and Water Conservation District Rational XL program.

## **RESULTS**

Pre-Development Conditions (See attached Pre-development drainage map and Pre-development hydrology calculations):

Area 1 (flow toward the west):

25-year runoff:  $A = 0.350$  ac.,  $Q = 0.85$  cfs

Area 2 (flow toward Anacapa Street):

25-year runoff:  $A = 1.08$  ac.,  $Q = 2.61$  cfs

Total Pre-development 25-year runoff:  $Q = 3.46$  cfs

Post-Development Conditions (See attached Post-development drainage map and Post-development hydrology calculations):

Area 1 (flow toward the west):

25-year runoff:  $A = 0.35$  ac.,  $Q = 0.85$  cfs

Area 2 (flow toward Anacapa Street):

25-year runoff:  $A = 1.08$  ac.,  $Q = 2.61$  cfs

Total Post-development 25-year runoff:  $Q = 3.46$  cfs

## **CONCLUSIONS**

The total Post-Development 25-year runoff for 318 State Street site will be 3.46 cfs, which is the same as the Pre-Development 25-year runoff. Therefore, the runoff is not increased for the project development.

16775-01

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
**FLOOD INSURANCE RATE MAP**

CITY OF  
SANTA BARBARA,  
CALIFORNIA  
SANTA BARBARA COUNTY

*\* see letter of map  
revision in blue binder*  
PANEL 5 OF 11  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

REVISED TO  
REFLECT LOMR  
DATED JAN 15 2004

COMMUNITY-PANEL NUMBER

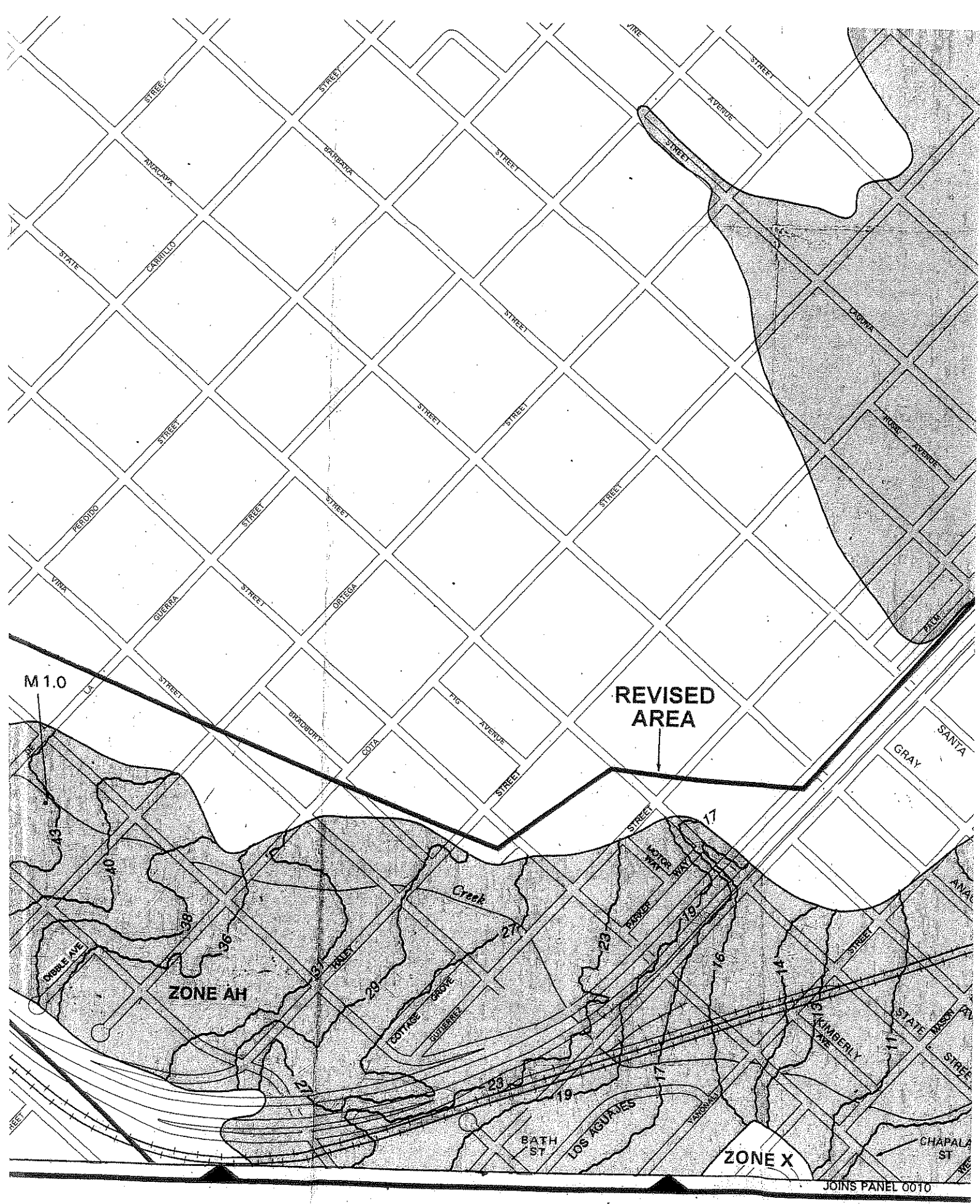
0603350005D

MAP REVISED:

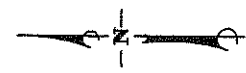
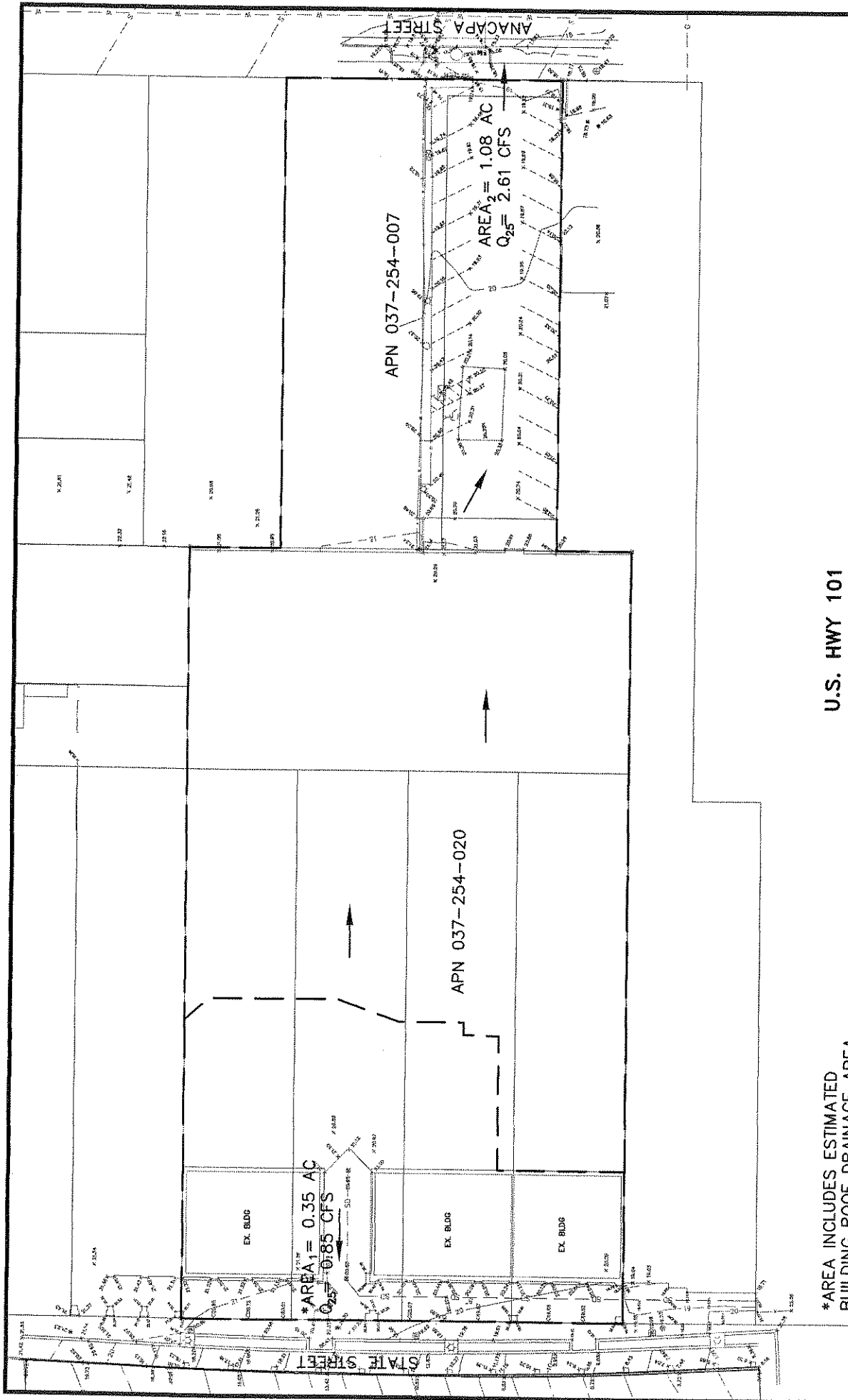
DECEMBER 3, 1991



Federal Emergency Management Agency



**ATTACHMENTS**  
**PRE-DEVELOPMENT ANALYSIS**



**Penfield & Smith**

ENGINEERS • SURVEYORS • PLANNERS

CAMARILLO SANTA BARBARA SANTA MARIA LANCASTER

16775.01

15775GD.dwg

1"=50'

**318 STATE STREET  
PRE-DEVELOPMENT**

**DRAINAGE AREA MAP**

# Santa Barbara County Flood Control and Water Conservation District

## Program Rational - XL

<b>User Data:</b>			
<b>Project Name:</b>	318 State Street	<b>Project Number:</b>	16775.01
<b>Date of Run:</b>	11/11/2005	<b>Run By:</b>	CEC
<b>Notes:</b>	25-YEAR STORM FOR PRE-DEVELOPMENT- AREA 1		

<b>Input Data:</b>				
Location:	South Coast	Land Use Type:	Commercial	
Area (Acres):	0.35	Time of Concentration (Min.):	12	
Calculated Runoff Coefficient:	Q10: 0.73	Q25: 0.76	Q50: 0.79	Q100: 0.80
User Selected Runoff Coefficient (Optional):				Calculate

<b>For Large Lot Subdivisions (&gt; 10,000 sq. ft.):</b>				
	Low Value:	High Value:	User Selected:	
Q10:				Enter Selection
Q25:				
Q50:				
Q100:				

<b>Results:</b>				
	Rainfall Intensity:	Runoff Coef:	Q (cfs):	
Q10:	2.61	0.73	10.67	View RI Curves
Q25:	3.18	0.76	10.85	
Q50:	3.68	0.79	11.02	View RC Curves
Q100:	4.03	0.80	11.13	
				Print
				Exit



# Santa Barbara County Flood Control and Water Conservation District

## Program Rational - XL

### User Data:

<b>Project Name:</b>	318 State Street	<b>Project Number:</b>	16775.01
<b>Date of Run:</b>	11/11/2005	<b>Run By:</b>	CEC
<b>Notes:</b>	25-YEAR STORM FOR PRE-DEVELOPMENT- AREA 2		

### Input Data:

Location:	South Coast	Land Use Type:	Commercial
Area (Acres):	1.08	Time of Concentration (Min.):	12
Calculated Runoff Coefficient:	Q10: 0.73	Q25: 0.76	Q50: 0.79
User Selected Runoff Coefficient (Optional):			
			Calculate

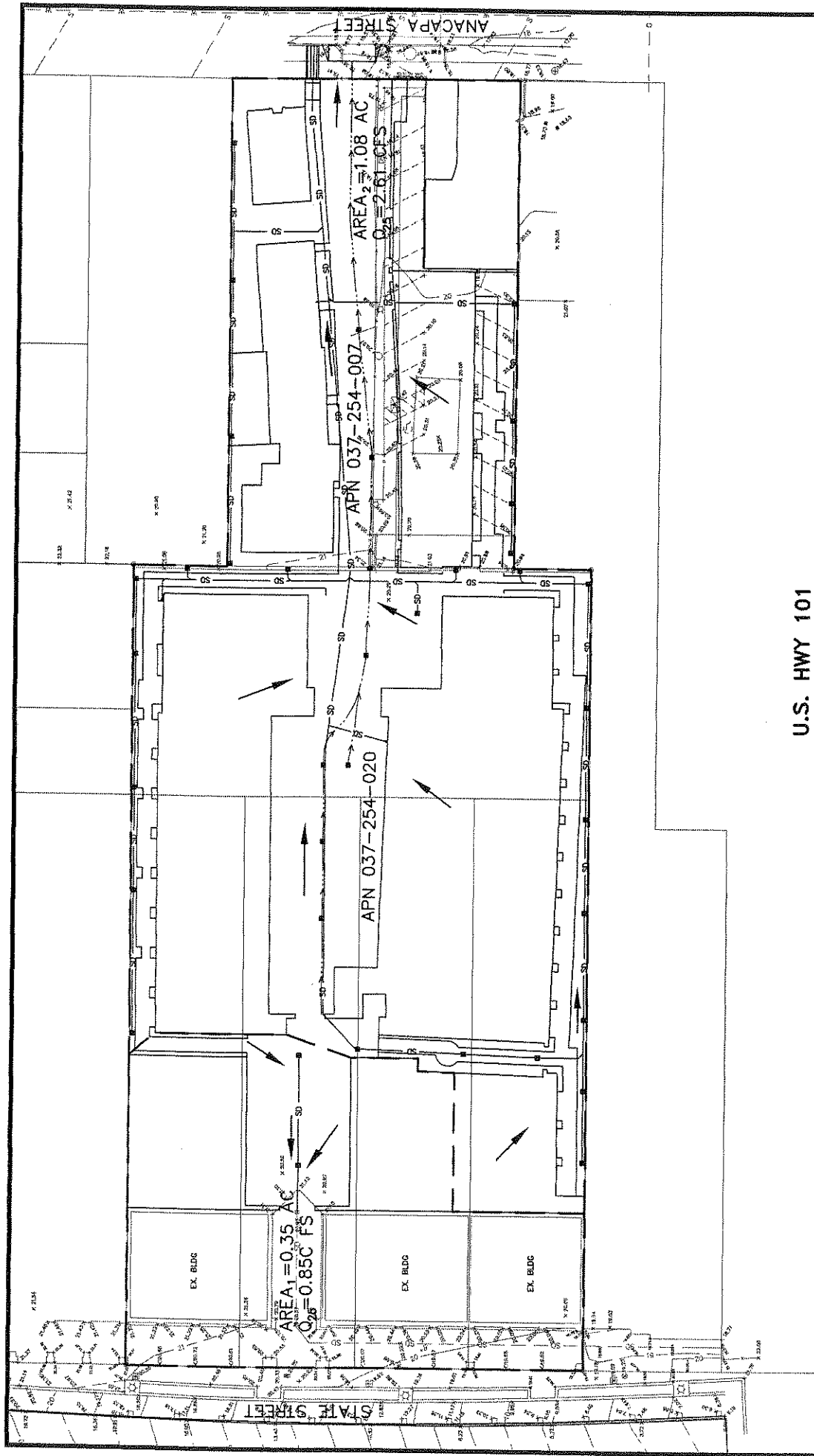
### For Large Lot Subdivisions (>10,000 sq. ft.):

	Low Value:	High Value:	User Selected:	
Q10:				Enter Selection
Q25:				
Q50:				
Q100:				

### Results:

	Rainfall Intensity:	Runoff Coef:	Q (cfs):	
Q10:	2.61	0.73	2.06	View RI Curves
Q25:	3.18	0.76	2.61	
Q50:	3.68	0.79	3.14	View RC Curves
Q100:	4.03	0.80	3.48	
				Print
				Exit

## **POST-DEVELOPMENT ANALYSIS**



U.S. HWY 101

**Penfield & Smith**  
 ENGINEERS • SURVEYORS • PLANNERS  
 CAMARILLO SANTA BARBARA SANTA MARIA LANCASTER  
 16775.01 15775GD.dwg 1"=50'

**318 STATE STREET  
 POST-DEVELOPMENT  
 DRAINAGE AREA MAP**

# Santa Barbara County Flood Control and Water Conservation District

## Program Rational - XL

User Data:	
<b>Project Name:</b> 318 State Street	<b>Project Number:</b> 16775.01
<b>Date of Run:</b> 11/11/2005	<b>Run By:</b> CEC
<b>Notes:</b> 25-YEAR STORM FOR POST- DEVELOPMENT- AREA 1	

Input Data:	
<b>Location:</b> South Coast	<b>Land Use Type:</b> Commercial
<b>Area (Acres):</b> 0.35	<b>Time of Concentration (Min.):</b> 12
<b>Calculated Runoff Coefficient:</b>	<b>Q10:</b> 0.73 <b>Q25:</b> 0.76 <b>Q50:</b> 0.79 <b>Q100:</b> 0.80
<b>User Selected Runoff Coefficient (Optional):</b>	<input type="button" value="Calculate"/>

For Large Lot Subdivisions (>10,000 sq. ft.):			
	Low Value:	High Value:	User Selected:
Q10:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Q25:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Q50:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Q100:	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Enter Selection"/>			

Results:			
	Rainfall Intensity:	Runoff Coef:	Q (cfs):
Q10:	2.61	0.73	10.67
Q25:	3.18	0.76	10.85
Q50:	3.68	0.79	11.02
Q100:	4.03	0.80	11.13
<input type="button" value="View RI Curves"/>			<input type="button" value="Print"/>
<input type="button" value="View RC Curves"/>			<input type="button" value="Exit"/>

# Santa Barbara County Flood Control and Water Conservation District

## Program Rational - XL

### User Data:

<b>Project Name:</b>	318 State Street	<b>Project Number:</b>	16775.01
<b>Date of Run:</b>	11/11/2005	<b>Run By:</b>	CEC
<b>Notes:</b>	25-YEAR STORM FOR POST- DEVELOPMENT- AREA 2		

### Input Data:

Location:	South Coast	Land Use Type:	Commercial
Area (Acres):	1.08	Time of Concentration (Min.):	12
Calculated Runoff Coefficient:	Q10: 0.73	Q25: 0.76	Q50: 0.79
User Selected Runoff Coefficient (Optional):			
			Calculate

### For Large Lot Subdivisions (>10,000 sq. ft.):

	Low Value:	High Value:	User Selected:	
Q10:				Enter Selection
Q25:				
Q50:				
Q100:				

### Results:

	Rainfall Intensity:	Runoff Coef:	Q (cfs):		
Q10:	2.61	0.73	22.06	View RI Curves	Print
Q25:	3.18	0.76	22.61		
Q50:	3.68	0.79	33.14	View RC Curves	Exit
Q100:	4.03	0.80	33.48		